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1. Your reference

C4312(C)/RJG

2. Patent application number

(The Patent Office will fill in this part)

0313246.1

10JUN03 E813554-2 002898  
P01/7700 0.00-0313246.1

- 9 JUN 2003

3. Full name, address and postcode of the or of each applicant (underline all surnames)

UNILEVER PLC  
UNILEVER HOUSE, BLACKFRIARS  
LONDON, EC4P 4BQ

Patents ADP number (if you know it)

50426956002 ✓

If the applicant is a corporate body, give the country/state of its incorporation

UNITED KINGDOM

4. Title of the invention

BLEACHING COMPOSITION

5. Name of your agent (if you have one)

ELLIOTT, Peter William

"Address for Service" in the United Kingdom to which all correspondence should be sent (including the postcode)

PATENT DEPARTMENT, UNILEVER PLC  
COLWORTH HOUSE, SHARNBROOK  
BEDFORD, MK44 1LQ

Patents ADP number (if you know it)

6573927001

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Country	Priority application number (if you know it)	Date of filing (day / month / year)
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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing (day/month/year)
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Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
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# Patents Form 1/77

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Description	18
Claim(s)	3
Abstract	1
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Priority Documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77) 1

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature(s) Leonie Watkinson Date: 09/06/03

Leonie WATKINSON, Authorised Signatory

12. Name and daytime telephone number of person to contact in the United Kingdom

Robert Green (01234) 222650

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- 1 -

## BLEACHING COMPOSITION

## FIELD OF INVENTION

This invention relates to the enhancement of bleaching  
5 compositions that are substantially devoid of peroxy species.

## BACKGROUND OF INVENTION

The use of bleaching catalysts for stain removal has been  
10 developed over recent years. The recent discovery that  
some catalysts are capable of bleaching effectively in  
the absence of an added peroxy source has recently  
become the focus of some interest, for example:  
WO9965905; WO0012667; WO0012808; WO0029537, and,  
15 WO0060045.

The shelf life of a product may be regarded as the period  
of time over which the product may be stored whilst  
retaining its required quality. A satisfactory shelf  
20 life is in many instances a crucial factor for the  
success of a commercial product. A product with a short  
shelf life generally dictates that the product is made in  
small batches and is rapidly sold to the consumer. It is  
also a concern to the owners of a brand with a short  
25 shelf life that the consumer uses the product within the  
shelf life otherwise the consumer may be inclined to  
change to a similar product of another brand. In  
contrast a similar product with a long shelf life may be  
made in larger batches, held as stock for a longer period  
30 of time and the period of time that a consumer stores the

product is not of a great concern to the owners of a particular brand.

It is an object of the present invention to provide an  
5 air bleaching composition that has improved storage properties.

#### SUMMARY OF INVENTION

We have found that some components degrade per se and/or  
10 reduce the activity of bleaching catalysts over a period of time. We have found that by carefully selecting certain components the stability of a bleaching composition, which is substantially devoid of a peroxygen bleach or a peroxy-based or peroxy-generating bleach  
15 system, is improved. The present invention has particular utility in commercial liquid bleaching compositions.

The present invention provides a bleaching composition comprising:

20

(a) an organic substance which forms a complex with a transition metal for bleaching a substrate with atmospheric oxygen, the bleaching composition upon addition to an aqueous medium providing an aqueous  
25 bleaching medium substantially devoid of a peroxygen bleach or a peroxy-based or peroxy-generating bleach system,

(b) between 0.001 to 3 wt/wt % of a perfume composition  
30 said perfume composition comprising at least 0.01 wt % of a terpene perfume, and

(c) an antioxidant in the range from 0.0001 to 20 wt/wt %,

(d) the balance carriers and adjunct ingredients to 100 wt/wt % of the total bleaching composition.

The term "substantially devoid of a peroxygen bleach or a peroxy-based or peroxy-generating bleach system" should be construed within spirit of the invention. It is preferred that the composition has as low a content of peroxy species present as possible. It is preferred that the bleaching formulation contains less than 1 % wt/wt total concentration of peracid or hydrogen peroxide or source thereof, preferably the bleaching formulation contains less than 0.3 % wt/wt total concentration of peracid or hydrogen peroxide or source thereof, most preferably the bleaching composition is devoid of peracid or hydrogen peroxide or source thereof. In addition, it is preferred that the presence of alkyl hydroperoxides is kept to a minimum in a bleaching composition comprising the ligand or complex of the present invention.

The present invention extends to a method of bleaching a substrate/textile with a composition of the present invention. The method comprising the steps of treating a substrate with the bleaching composition in an aqueous environment, rinsing the substrate and drying the substrate.

The present invention also extends to a commercial package together with instructions for its use.

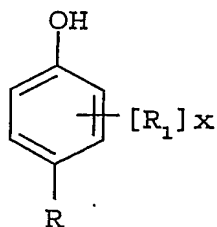
## DETAILED DESCRIPTION OF THE INVENTION

ANTIOXIDANT

The bleaching compositions of the present invention will  
5 comprise an effective amount of the antioxidant. An  
effective amount of an antioxidant is in the range 0.001  
to 20 wt/wt % depending upon the nature of the  
antioxidant and subsidiary purpose of the antioxidant,  
for example as a carrier or solvent. Preferably the  
10 antioxidant is present in the range from 0.001 to 2 wt/wt  
%. When a phenolic antioxidant is present it is  
preferred that the phenolic antioxidant present in the  
range from 0.0001 to 3 % wt % of the composition. When an  
amine antioxidant it is present it is preferred that the  
15 phenolic antioxidant present in the range from 0.0001 to  
20 % wt % of the composition.

Anti-oxidants are substances as described in Kirk-Othmers  
(Vol 3, pg 424) and in Uhlmans Encyclopedia (Vol 3, pg  
20 91).

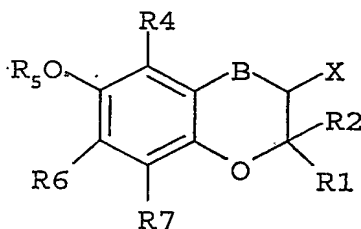
One class of anti-oxidants suitable for use in the  
present invention is alkylated phenols having the general  
formula:



25 wherein R is C1-C22 linear or branched alkyl, preferably  
methyl or branched C3-C6 alkyl; C3-C6 alkoxy, preferably

methoxy; R1 is a C3-C6 branched alkyl, preferably tert-butyl; x is 1 or 2. Hindered phenolic compounds are preferred as antioxidant.

- 5 Another class of anti-oxidants, suitable for use in the present invention is a benzofuran or benzopyran derivative having the formula:



- wherein R1 and R2 are each independently alkyl or R1 and R2 can be taken together to form a C5-C6 cyclic hydrocarbyl moiety; B is absent or CH<sub>2</sub>; R4 is C1-C6 alkyl; R5 is hydrogen or -C(O)R<sub>3</sub> wherein R<sub>3</sub> is hydrogen or C1-C19 alkyl; R6 is C1-C6 alkyl; R7 is hydrogen or C1-C6 alkyl; X is -CH<sub>2</sub>OH, or -CH<sub>2</sub>A wherein A is a nitrogen comprising unit, phenyl, or substituted phenyl. Preferred nitrogen comprising A units include amino, pyrrolidino, piperidino, morpholino, piperazino, and mixtures thereof.

- Other suitable antioxidants are found as follows. A derivative of  $\alpha$ -tocopherol, beta-tocopherol, gamma-tocopherol, delta-tocopherol, 6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid (Trolox<sup>TM</sup>).

- Anti-oxidants/radical scavengers such as ascorbic acid (vitamin C) and its salts, tocopherol (vitamin E), tocopherol sorbate, other esters of tocopherol, butylated hydroxy benzoic acids and their salts, gallic acid and its alkyl esters, especially propyl gallate, uric acid



and its salts and alkyl esters, sorbic acid and its salts, the ascorbyl esters of fatty acids, amines (e.g., N,N-diethylhydroxylamine, amino-guanidine, amine alcohols), sulfhydryl compounds (e.g., glutathione), and  
5 dihydroxy fumaric acid and its salts may be used.

Non-limiting examples of anti-oxidants suitable for use in the present invention include phenols *inter alia* 2,6-di-tert-butylphenol, 2,6-di-tert-butyl-4-methylphenol,  
10 mixtures of 2 and 3- tert-butyl-4-methoxyphenol, and other ingredients including include propyl gallate, tert-butylhydroquinone, benzoic acid derivatives such as methoxy benzoic acid, methylbenzoic acid, dichloro benzoic acid, dimethyl benzoic acid, 5-hydroxy-2,2,4,6,7-  
15 pentamethyl-2,3-dihydro-1-benzofuran-3-one, 5-hydroxy-3-methylene-2,2,4,6,7-pentamethyl-2,3-dihydro-benzofuran, 5-benzyloxy-3-hydroxymethyl-2,2,4,6,7-pentamethyl-2,3-dihydro-1-benzofuran, 3-hydroxymethyl-5-methoxy-  
2,2,4,6,7-pentamethyl-2,3-dihydro-1-benzofuran, vitamin  
20 C(ascorbic acid), and Ethoxyquine (1,2-dihydro-6-ethoxy-2,2,4-trimethylchinolin) marketed under the name Raluquin™ by the company Raschig™.

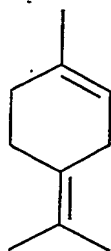
Preferred antioxidants for use herein include 2,6-di-  
25 tert-butyl hydroxy toluene (BHT),  $\alpha$ -tocopherol, hydroquinone, 2,2,4-trimethyl-1,2-dihydroquinoline, 2,6-di-tert-butyl hydroquinone, 2-tert-butyl hydroquinone, tert-butyl-hydroxy anisole, lignosulphonic acid and salt thereof, benzoic acid and derivatives thereof, like  
30 alkoxylated benzoic acids, as for example, trimethoxy benzoic acid (TMBA), toluic acid, catechol, t-butyl

catechol, benzylamine, amine alcohols, 1,1,3-tris(2-methyl-4-hydroxy-5-t-butylphenyl) butane, N-propylgallate or mixtures thereof and highly preferred is di-tert-butyl hydroxy toluene. Of the amine alcohols 2-amino-2-methyl-1-propanol, tri-ethanol amine, trimethanol amine, mono-ethanol amine, diethanol amine, are preferred.

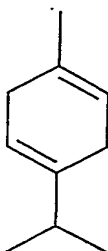
Mixtures of antioxidants may be use and in particular mixtures that have synergic antioxidant effects as found in, for example, WO02/072746.

#### TERPENE PURFUMES

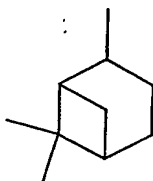
The bleaching composition of the present invention comprises between 0.001 to 3 wt/wt % of a perfume composition, preferably between 0.1 to 2 wt/wt % of a perfume composition. The perfume composition may be 100% terpene perfume but generally the perfume composition is a complex mixture of perfumes of other differing perfume classifications, for example terpenes and ketones; in this regard, the perfume composition comprises at least 0.01 wt % of a terpene perfume. At higher levels of terpene perfume the greater the importance of the antioxidant, for example at least 0.1, 1.0 wt % and 5 wt % of a terpene perfume component of the perfume composition. The present invention has particular utility with, but not limited to, the following terpene perfume components.

Terpene purfumes

terpinolene



Gamma-terpinene



pinane

5

THE BLEACH CATALYST

The bleach catalyst per se may be selected from a wide range of transition metal complexes of organic molecules (ligands). In typical washing compositions the level of the organic substance is such that the in-use level is from 0.05  $\mu\text{M}$  to 50 mM, with preferred in-use levels for domestic laundry operations falling in the range 1 to 100  $\mu\text{M}$ . Higher levels may be desired and applied in industrial textile bleaching processes.

Suitable organic molecules (ligands) for forming complexes and complexes thereof are found, for example in:

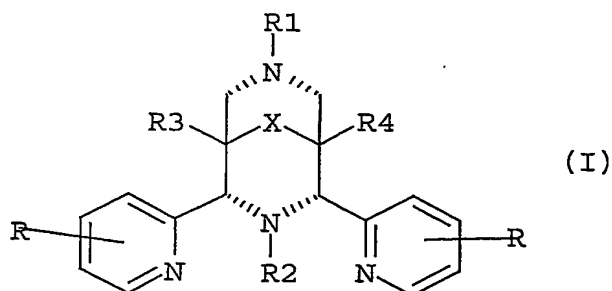
GB 9906474.3; GB 9907714.1; GB 98309168.7, GB 98309169.5; GB 9027415.0 and GB 9907713.3; DE 19755493; EP 999050; WO-A-9534628; EP-A-458379; EP 0909809; United States Patent 4,728,455; WO-A-98/39098; WO-A-98/39406, WO

20

9748787, WO 0029537; WO 0052124, and WO0060045 the complexes and organic molecule (ligand) precursors of which are herein incorporated by reference. An example of a preferred catalyst is a transition metal complex of  
5 MeN4Py ligand (N,N-bis(pyridin-2-yl-methyl)-1,1-bis(pyridin-2-yl)-1-aminoethane).

The ligand forms a complex with one or more transition metals, in the latter case for example as a dinuclear  
10 complex. Suitable transition metals include for example: manganese in oxidation states II-V, iron II-V, copper I-III, cobalt I-III, titanium II-IV, tungsten IV-VI, vanadium II-V and molybdenum II-VI.

15 An example of a preferred catalyst is a monomer ligand or transition metal catalyst thereof of a ligand having the formula (I):



20

wherein each R is independently selected from: hydrogen, F, Cl, Br, hydroxyl, C1-C4-alkylo-, -NH-CO-H, -NH-CO-C1-C4-alkyl, -NH<sub>2</sub>, -NH-C1-C4-alkyl, and C1-C4-alkyl;

R1 and R2 are independently selected from:

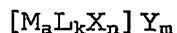
25 C1-C4-alkyl,  
C6-C10-aryl, and,

a group containing a heteroatom capable of coordinating to a transition metal, wherein at least one of R1 and R2 is the group containing the heteroatom;

R3 and R4 are independently selected from hydrogen, C1-C8 alkyl, C1-C8-alkyl-O-C1-C8-alkyl, C1-C8-alkyl-O-C6-C10-aryl, C6-C10-aryl, C1-C8-hydroxyalkyl, and  $-(CH_2)_nC(O)OR_5$  wherein R5 is independently selected from: hydrogen, C1-C4-alkyl; n is from 0 to 4, and mixtures thereof; and, X is selected from C=O,  $-[C(R_6)_2]_Y-$  wherein Y is from 0 to 3 each R6 is independently selected from hydrogen, hydroxyl, C1-C4-alkoxy and C1-C4-alkyl.

The transition metal complex preferably is of the general formula (AI):

15



in which:

M represents a metal selected from Mn(II)-(III)-(IV)-(V), Cu(I)-(II)-(III), Fe(II)-(III)-(IV)-(V), Co(I)-(II)-(III), Ti(II)-(III)-(IV), V(II)-(III)-(IV)-(V), Mo(II)-(III)-(IV)-(V)-(VI) and W(IV)-(V)-(VI), preferably from Fe(II)-(III)-(IV)-(V);

L represents the ligand, preferably N,N-bis(pyridin-2-yl-methyl)-1,1-bis(pyridin-2-yl)-1-aminoethane, or its protonated or deprotonated analogue;

X represents a coordinating species selected from any mono, bi or tri charged anions and any neutral molecules able to coordinate the metal in a mono, bi or tridentate manner;

Y represents any non-coordinated counter ion;

- a represents an integer from 1 to 10;  
k represents an integer from 1 to 10;  
n represents zero or an integer from 1 to 10;  
m represents zero or an integer from 1 to 20.

5

BALANCE CARRIERS AND ADJUNCT INGREDIENTS

- These are generally surfactants, builders, foam agents, anti-foam agents, solvents, and enzymes. The use and  
10 amounts of these components are such that the bleaching composition performs depending upon economics, environmental factors and use of the bleaching composition.
- 15 The air bleach catalyst may be used in a detergent composition specifically suited for stain bleaching purposes, and this constitutes a second aspect of the invention. To that extent, the composition comprises a  
20 surfactant and optionally other conventional detergent ingredients. The invention in its second aspect provides an enzymatic detergent composition which comprises from 0.1 - 50. % by weight, based on the total detergent composition, of one or more surfactants. This surfactant system may in turn comprise 0 - 95 % by weight of one or  
25 more anionic surfactants and 5 to 100 % by weight of one or more nonionic surfactants. The surfactant system may additionally contain amphoteric or zwitterionic detergent compounds, but this is not normally desired owing to their relatively high cost. The enzymatic detergent  
30 composition according to the invention will generally be used as a dilution in water of about 0.05 to 2%.

In general, the nonionic and anionic surfactants of the surfactant system may be chosen from the surfactants described "Surface Active Agents" Vol. 1, by Schwartz & Perry, Interscience 1949, Vol. 2 by Schwartz, Perry & Berch, Interscience 1958, in the current edition of "McCutcheon's Emulsifiers and Detergents" published by Manufacturing Confectioners Company or in "Tenside-Taschenbuch", H. Stache, 2nd Edn., Carl Hauser Verlag, 1981.

Suitable nonionic detergent compounds which may be used include, in particular, the reaction products of compounds having a hydrophobic group and a reactive hydrogen atom, for example, aliphatic alcohols, acids, amides or alkyl phenols with alkylene oxides, especially ethylene oxide either alone or with propylene oxide. Specific nonionic detergent compounds are C<sub>6</sub>-C<sub>22</sub> alkyl phenol-ethylene oxide condensates, generally 5 to 25 EO, i.e. 5 to 25 units of ethylene oxide per molecule, and the condensation products of aliphatic C<sub>8</sub>-C<sub>18</sub> primary or secondary linear or branched alcohols with ethylene oxide, generally 5 to 40 EO.

Suitable anionic detergent compounds which may be used are usually water-soluble alkali metal salts of organic sulphates and sulphonates having alkyl radicals containing from about 8 to about 22 carbon atoms, the term alkyl being used to include the alkyl portion of higher acyl radicals. Examples of suitable synthetic anionic detergent compounds are sodium and potassium alkyl sulphates, especially those obtained by sulphating higher

C<sub>8</sub>-C<sub>18</sub> alcohols, produced for example from tallow or coconut oil, sodium and potassium alkyl C<sub>9</sub>-C<sub>20</sub> benzene sulphonates, particularly sodium linear secondary alkyl C<sub>10</sub>-C<sub>15</sub> benzene sulphonates; and sodium alkyl glyceryl ether sulphates, especially those ethers of the higher alcohols derived from tallow or coconut oil and synthetic alcohols derived from petroleum. The preferred anionic detergent compounds are sodium C<sub>11</sub>-C<sub>15</sub> alkyl benzene sulphonates and sodium C<sub>12</sub>-C<sub>18</sub> alkyl sulphates. Also applicable are surfactants such as those described in EP-A-328 177 (Unilever), which show resistance to salting-out, the alkyl polyglycoside surfactants described in EP-A-070 074, and alkyl monoglycosides.

Preferred surfactant systems are mixtures of anionic with nonionic detergent active materials, in particular the groups and examples of anionic and nonionic surfactants pointed out in EP-A-346 995 (Unilever). Especially preferred is surfactant system that is a mixture of an alkali metal salt of a C<sub>16</sub>-C<sub>18</sub> primary alcohol sulphate together with a C<sub>12</sub>-C<sub>15</sub> primary alcohol 3-7 EO ethoxylate.

The nonionic detergent is preferably present in amounts greater than 10%, e.g. 25-90% by weight of the surfactant system. Anionic surfactants can be present for example in amounts in the range from about 5% to about 40% by weight of the surfactant system.

One skilled in the art will appreciate that some adventitious peroxy species may be in the composition nevertheless it is most preferred that the bleaching



composition of the present invention has less than 1%, preferably less than 0.1%, most preferably less than 0.01%, of a peroxy species present. These adventitious peroxy are predominantly alkyl hydroperoxides formed by  
5 autoxidation of the surfactants.

The detergent composition may take any suitable physical form, such as a powder, granular composition, tumble dryer sheet, tablets, a paste or an anhydrous gel.

10 The composition may contain additional enzymes as found in WO 01/00768 A1 page 15, line 25 to page 19, line 29, the contents of which are herein incorporated by reference.

15 Builders, polymers and other enzymes as optional ingredients may also be present as found in WO0060045.

Suitable detergency builders as optional ingredients may  
20 also be present as found in WO0034427.

The composition of the present invention may be used for laundry cleaning, hard surface cleaning (including cleaning of lavatories, kitchen work surfaces, floors, mechanical ware washing etc.). As is generally known in  
25 the art, bleaching compositions are also employed in waste-water treatment, pulp bleaching during the manufacture of paper, leather manufacture, dye transfer inhibition, food processing, starch bleaching,  
30 sterilisation, whitening in oral hygiene preparations and/or contact lens disinfection.

In the context of the present invention, bleaching should be understood as relating generally to the decolourisation of stains or of other materials attached to or associated with a substrate. However, it is

5 envisaged that the present invention can be applied where a requirement is the removal and/or neutralisation by an oxidative bleaching reaction of malodours or other undesirable components attached to or otherwise associated with a substrate. Furthermore, in the context  
10 of the present invention bleaching is to be understood as being restricted to any bleaching mechanism or process that does not require the presence of light or activation by light.

#### 15 LIQUID FORMULATION

The present invention has particular utility for liquid formulations because in contrast to a solid heterogeneous mixture in a liquid formulation the contact between individual components are more intimate and hence more  
20 susceptible to degradation due to interaction of components.

There are many commercial liquid formulations for detergents and rinse conditioners or other liquid  
25 products that may be enhanced by conferring a bleaching ability to the liquid formulation. As will be evident to one skilled in the art the present invention is applicable to known liquid formulations and liquid formulations to be developed.

- 16 -

The level of the catalyst in a commercial bleaching composition is from 0.0001 to 0.6 wt/wt %, preferably 0.001 to 0.15 wt/wt %, most preferably 0.01 to 0.1 wt/wt %. We have found that the level of catalyst is optimum  
5 between 0.03 to 0.09 wt/wt % in the commercial bleaching composition.

The present invention extends to both isotropic and complex liquid compositions and formulations a brief  
10 discussion of which follows. Some isotropic formulations are termed 'micro-emulsion' liquids that are clear and thermodynamically stable over a specified temperature range. The 'micro-emulsion' formulation may be water in oil, or oil in water emulsions. Some liquid formulations  
15 are macro-emulsions that are not clear and isotropic. Emulsions are considered meta-stable. Concentrated, clear compositions containing fabric softening actives have been disclosed in WO 98/08924 and WO 98/4799, both Procter & Gamble. Such compositions comprise bio-  
20 degradable fabric conditioners. However, both disclose compositions comprising water miscible solvents that do not form water-in-oil micro-emulsions. Clear fabric conditioning compositions have also been disclosed in EP 730023 (Colgate Palmolive), WO 96/19552 (Colgate  
25 Palmolive), WO 96/33800 (Witco Co.), WO 97/03170 (Procter & Gamble), WO 97/03172 (Procter & Gamble), WO 97/03169 (Procter & Gamble), US 5492636 (Quest Int.) and US 5427697 (Procter & Gamble). Liquid formulations of the present invention may contain for example; monoethoxy  
30 quats; AQAs and bis-AQAs; cationic amides; cationic esters; amino/diamino quats; glucamide; amine oxides;

ethoxylated polyethyleneimines; enhancement polymers of the form linear amine based polymers, e.g. bis-hexamethylenetriamine; polyamines e.g. TETA, TEPA or PEI polymers.

5

The liquid may be contained within a sachet as found in WO02/068577.

The following is an example of a liquid bleaching composition to which an organic substance which forms a complex with a transition metal for bleaching a substrate with atmospheric oxygen may be added together further antioxidant if required. The perfume composition as found in the following example comprising at least 0.01 wt % of a terpene perfume.

Ingredient	Wt%
Nonionic surfactant	26.6
Monopropylene glycol	5.5
Pigment premix	0.017
Glycerol	21.36
Monoethanolamine	7.56
Oleic fatty acid	13.10
Water	Up to 100
Linear alkyl benzene sulfonate	20.1
Perfume	1.6
Protease Enzyme	1.0

The following are further examples of commercial liquid formulations that the present invention may be

incorporated into: Wisk<sup>TM</sup> liquid USA, 1999, OMO<sup>TM</sup> liquid  
NL, 1999, OMO-liquido<sup>TM</sup> Brazil, 1999, and Rinse  
conditioner (Robijn<sup>TM</sup> - NL). In this regard, that  
catalyst is added and the level of antioxidant adjusted  
5 together with the perfume composition.

The following is a further example of a commercial liquid  
formulation that the present invention may be  
incorporated into by adding the catalyst and the  
10 appropriate level of antioxidant and perfume composition.  
The commercial liquid formulation has a pH of 7.

Sodium citrate:	3.2 %
Polypropylene glycol:	4.75 %
LAS-acid:	5.6 %
NI 25 9 EO:	6.6 %
LES (anionic surfactant):	10.5 %
Borax:	2.30 %
Sorbitol:	3.35, %
Alcosperce 725:	0.30 %
Coconut fatty acid:	0. 73 %
monoethanolamine:	0.20 %
fluorescer:	0.125 %
savinase/lipex	
perfume/dye	

It is most preferred that when the catalyst is in a  
15 liquid composition, the liquid composition has a pH of 7  
or below irrespective of whether perfumes and/or  
antioxidants are present or not.

We claim:

1. A bleaching composition comprising:

- 5 (a) an organic substance which forms a complex with a transition metal for bleaching a substrate with atmospheric oxygen, the bleaching composition upon addition to an aqueous medium providing an aqueous bleaching medium substantially devoid of a peroxygen  
10 bleach or a peroxy-based or peroxy-generating bleach system,
- (b) between 0.001 to 3 wt/wt % of a perfume composition said perfume composition comprising at least 0.01 wt % of  
15 a terpene perfume, and
- (c) an antioxidant in the range from 0.0001 to 20 wt/wt %,
- 20 (d) the balance carriers and adjunct ingredients to 100 wt/wt % of the total bleaching composition.

2. A bleaching composition according claim 1, wherein the antioxidant is selected from:

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(i) a phenolic antioxidant, the phenolic antioxidant present in the range 0.0001 to 3 % wt %; and,

(ii) an amine antioxidant, the amine antioxidant in the  
30 range from 0.0001 to 20%.

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3. A bleaching composition according claim 2, wherein the amine antioxidant is an amine alcohol.

4. A bleaching composition according to claim 3,  
5 wherein the amine alcohol is selected from the group consisting of: 2-amino-2-methyl-1-propanol, tri-ethanol amine, tri-methanol amine, mono-ethanol amine, diethanol amine, and methylantranilate.

10 5. A bleaching composition according to claim 2, wherein the antioxidant is a hindered phenol.

6. A bleaching composition according to claim 5,  
wherein the antioxidant is selected from the group  
15 consisting of: 2, 6-di-tert-butyl hydroxy toluene,  $\alpha$ -tocopherol, Ethoxyquine and 6-hydroxy-2,5,7,8-tetra-methylchroman-2-carboxylic acid, and lignosulphonic acid.

7. A bleaching composition according to claim 6,  
20 wherein the antioxidant is 2, 6-di-tert-butyl hydroxy toluene.

8. A bleaching composition according to claim 1,  
wherein the antioxidant is ascorbic acid.

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9. A bleaching composition according to claim 5 to 8,  
wherein the antioxidant is present in the bleaching composition in the range from 0.001 to 2 wt %.

30 10. A bleaching composition according to any preceding claim, wherein the bleaching composition is a liquid.

11. A bleaching composition according to any preceding claim, comprising between 0.1 to 2 wt/wt % of a perfume composition..

5 12. A bleaching composition according to any preceding claim, wherein said perfume composition comprises at least 0.1 wt % of a terpene perfume.

13. A bleaching composition according to claim 12,  
10 wherein said perfume composition comprises at least 1.0 wt % of a terpene perfume.

14. A bleaching composition according to claim 13,  
15 wherein the perfume composition comprises at least 5 wt % of a terpene perfume.

15. A bleaching composition according to any one of  
20 claims 1 to 9 and 11 to 14, wherein the bleaching composition is a solid bleaching composition.

16. A bleaching composition according to any preceding claim, wherein the terpene perfume is selected from the group consisting of: terpinolene, Gamma-terpinene, and pinane.

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17. A method of bleaching a textile stain, comprising the steps of treating a substrate with the bleaching composition as defined in any preceding claim in an aqueous environment, rinsing the substrate and drying the  
30 substrate.



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**Abstract of the Invention**

The present invention concerns the preservation of a perfume components is a bleaching composition. The bleaching composition is substantially devoid of a  
5 peroxygen bleach or a peroxy-based or peroxy-generating bleach system.